

Appl. No.: 10/029,307
Amdt. dated: April 19, 2004
Reply to Office action of: November 21, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (PREVIOUSLY AMENDED) A method of forming a tamper evident seal on a plastic bag containing a loaf of bread comprising the steps of:

flattening a portion of the neck of the bag adjacent the open end of the bag;

gripping spaced portions of the bag between a pair of horizontally spaced upper belts and a pair of horizontally spaced lower belts, said horizontally spaced upper and lower belts being arranged to engage spaced portions on the neck of a bag such that the neck bridges space between the belts;

forming a row of perforations across the neck of the bag between the loaf of bread in the bag and the open end of the bag neck;

forming first and second sealed strips on spaced portions on the neck that bridges space between the belts on the segment of the flattened portion adjacent opposite sides of the row of perforations, such that the loaf of bread in the bag is not accessible without removing the first sealed strip and opening the neck of the bag along the second sealed strip.

2. (CANCELLED)

3. (CANCELLED)

4. (CANCELLED)

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5. (PREVIOUSLY AMENDED) The method of Claim 1 wherein the step of forming a first sealed strip on a segment of the flattened portion comprises moving the neck of the bag such that streams of heated air impinge on the surface of the bag for fusing panels on the bag together to form a sealed strip.

6. (PREVIOUSLY AMENDED) The method of Claim 5 wherein the step of forming a first sealed strip comprises the steps of:

delivering air heated to a temperature in a range between about 315° and 600° Fahrenheit in a stream to impinge against the surface of the bag.

7. (CANCELLED).

8. (CANCELLED).

9. (CURRENTLY AMENDED) ~~[Apparatus for forming a tamper evident closure on a plastic bag according to Claim 8]~~

Apparatus for forming a tamper evident closure on a plastic bag containing a product comprising:
means for gripping spaced portions of the bag;
means for forming a row of perforations in the bag between the gripped portions of the bag; and
means for delivering temperature controlled gas to impinge against the surfaces of the bag
between the gripped portions for fusing portions of the bag between the gripped portions for forming
hard and soft sealed strips, said perforations being positioned to permit removal of the hard sealed strip,
said means for gripping spaced portions of the bag comprising horizontally spaced upper belts and horizontally spaced lower belts, said horizontally spaced upper and lower belts being arranged to engage spaced portions on the neck of a bag such that the neck bridges space between the belts.

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10. (CURRENTLY AMENDED) Apparatus for forming a tamper ~~resistant~~ evident closure on a plastic bag according to Claim 8 9, said means for forming a row of perforations in the bag ~~adjacent~~ between the gripped portions comprising an anvil having a slot formed therein adjacent one side of the neck of the bag and a perforator wheel having cutter teeth positioned adjacent the other side of the bag neck such that said teeth perforate the bag and extend into the slot formed in the anvil when a bag neck moves between the anvil and the perforator wheel.

11. (CURRENTLY AMENDED) Apparatus for forming a tamper ~~resistant~~ evident closure on a plastic bag according to Claim 8 9, said means for delivering temperature controlled gas to impinge against the surface of the bag comprising an upper manifold positioned above the neck of the bag and a lower manifold positioned below the neck of the bag; and means for delivering air through said upper and lower manifolds for impinging against the neck of the bag, said air being heated to a temperature sufficient for melting the bag neck for forming sealed strips extending generally parallel to said row of perforations.

12. (PREVIOUSLY AMENDED) Apparatus for forming a tamper evident closure on a plastic bag according to Claim 11 with the addition of a diverter valve adjacent each of said upper and lower manifolds, each said diverter valve being actuatable to divert air flow from said upper and lower manifolds and to exhaust air, without interruption of the flow of air into the diverter valves.

13. (PREVIOUSLY AMENDED) Apparatus for forming a tamper evident closure on a plastic bag containing a product comprising:

a conveyor for moving a plastic bag containing a product along a path, said bag having an open end forming a neck extending beyond the product in the bag;

an air nozzle for flattening the open neck as the bag is moved by said conveyor;

a pair of upper brushes and a pair of lower brushes, a first of said pair of upper and lower brushes having bristles arranged to engage the flattened neck of the bag and draw the bag transversely across said conveyor, second upper and lower brushes having angularly inclined bristles for moving the leading edge of the bag neck longitudinally of the conveyor while the trailing edge of the bag neck is engaged by

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the first upper and lower brushes;

a pair of upper belts and a pair of lower belts, said upper and lower belts being horizontally spaced apart such that one of said upper belts and one of said lower belts engage opposite sides of a portion of the neck of the bag and one of said upper belts and one of said lower belts engages a second portion of said bag neck such that a portion of the bag neck bridges space between the upper pair of belts and the lower pair of belts; and

upper and lower air dispensers positioned to deliver heated air to impinge against upper and lower surfaces of the portion of the bag neck bridging between the belts for melting and forming a soft sealed strip across the entire width of the bag neck for forming a seal on the bag neck to permit opening the neck of the bag along the soft sealed strip.

14. (CANCELLED).

15. (CANCELLED).

16. (CANCELLED).

17. (ALLOWED) Apparatus for forming a tamper evident closure on a plastic bag containing a product comprising:

a conveyor for moving a plastic bag containing a product along a path, said bag having an open end forming a neck extending beyond the product in the bag;

an air nozzle for flattening the open neck as the bag is moved by said conveyor;

a pair of upper belts and a pair of lower belts, said upper and lower belts being horizontally spaced apart such that one of said upper belts and one of said lower belts engage opposite sides of a portion of the neck of the bag and one of said upper belts and one of said lower belts engages a second portion of said bag neck such that a portion of the bag neck bridges space between the upper pair of belts and the lower pair of belts;

a perforator wheel adjacent one side of said bag neck and an anvil having a slot formed therein adjacent the other side of the bag neck, said perforator wheel forming a row of perforations in the neck

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of the bag moved by said upper and lower belts; and

upper and lower air dispensers positioned to deliver heated air to impinge against upper and lower surfaces of the portion of the bag neck bridging between the belts for melting and forming first and second seal strips adjacent opposite sides of a row of perforations, said first seal strip being a hard seal that can be torn from the bag when the bag is torn along the row of perforations, and said second seal being a soft seal formed to permit flaps of the bag to be separated along the soft seal for accessing the contents of the bag, said soft seal being configured to assure that the contents of the bag remain fresh and to prevent contamination.

18. (CANCELLED).

19. (CANCELLED).

20. (ALLOWED) Apparatus for forming a tamper evident closure on a plastic bag containing a product comprising:

a conveyor for moving a plastic bag containing a product along a path, said bag having an open end forming a neck extending beyond the product in the bag;

a pair of upper belts and a pair of lower belts, said upper and lower belts being horizontally spaced apart such that one of said upper belts and one of said lower belts engage opposite sides of a portion of the neck of the bag and one of said upper belts and one of said lower belts engages a second portion of said bag neck such that a portion of the bag neck bridges space between the upper pair of belts and the lower pair of belts;

upper and lower air dispensers positioned to deliver heated air to impinge against upper and lower surfaces of the portion of the bag neck bridging between the horizontally spaced belts for melting and forming a sealed strip across the width of the bag neck; and
motor driven upper and lower gathering belts synchronized with said upper and lower belts for moving bags along a path to a position adjacent a needle assembly, a twister hook assembly and a holder-shear assembly for wrapping a wire-like tie around the neck of the bag.

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21. (ALLOWED) Apparatus for forming a tamper evident closure on a plastic bag containing a product according to Claim 20, further comprising:

means for forming a row of perforations in the bag between the gripped portions of the bag; and
means spaced from said means for forming a row of perforations for delivering temperature controlled gas to impinge against the surfaces of the bag between the gripped portions for fusing portions of the bag between the gripped portions for forming hard and soft sealed strips, said perforations being positioned between the sealed strips to permit removal of the hard sealed strip.

22. (ALLOWED) Apparatus for forming a tamper evident closure on a plastic bag according to Claim 21, said means for forming a row of perforations in the bag adjacent the gripped portions comprising:

an anvil having a slot formed therein adjacent one side of the neck of the bag and a perforator wheel having cutter teeth positioned adjacent the other side of the bag neck such that said teeth perforate the bag and extend into the slot formed in the anvil when a bag neck moves between the anvil and the perforator wheel.

23. (ALLOWED) Apparatus for forming a tamper evident closure on a plastic bag according to Claim 20, said upper and lower air dispensers positioned to deliver heated air to impinge against upper and lower surfaces of the portion of the bag neck comprising:

an upper manifold positioned above the neck of the bag and a lower manifold positioned below the neck of the bag; and

means for delivering air through said upper and lower manifolds for impinging against the neck of the bag, said air being heated to a temperature sufficient for melting the bag neck for forming a sealed strip.

24. (ALLOWED) Apparatus for forming a tamper evident closure on a plastic bag according to Claim 23, with the addition of:

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a diverter valve adjacent each of said upper and lower manifolds, said diverter valve being actuatable to divert air flow from said upper and lower manifolds and to exhaust air, without interruption of the flow of air into the diverter valves.